



Attorney Docket No: IMMR-064/00US

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Danny GRANT

Examiner: Unassigned

Serial No. 10/758,599

Art Unit: 2837

Confirmation No.: 5397

Filed: January 16, 2004

For: **METHOD AND APPARATUS FOR PROVIDING HAPTIC FEEDBACK  
HAVING A POSITION-BASED COMPONENT AND A PREDETERMINED  
TIME-BASED COMPONENT**

---

U.S. Patent and Trademark Office  
220 20<sup>th</sup> Street South  
Customer Window, Mail Stop Missing Parts  
Crystal Plaza Two, Lobby, Room 1B03  
Arlington, VA 22202

**INFORMATION DISCLOSURE STATEMENT TRANSMITTAL**

Enclosed is an Information Disclosure Statement and accompanying Form PTO/SB/08A for the above-identified patent application.

- ☒ In accordance with 37 C.F.R. §1.97(b), no additional fee for submission of the IDS is required.
- ☐ In accordance with 37 C.F.R. §1.97(c), also enclosed is:
  - ☐ the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p); or
  - ☐ a statement as specified in 37 C.F.R. §1.97(e).
- ☐ In accordance with 37 C.F.R. §1.97(d), a statement as specified in 37 C.F.R. §1.97(e) and the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p) are also enclosed.
- ☐ Check in the amount of \$\_\_\_\_\_ for the total fee is attached.
- ☐ A return receipt postcard is also enclosed.
- ☐ Please charge \$\_\_\_ to Deposit Account No. 50-1283 for the total fee. This paper is being submitted in duplicate.


The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 50-1283.

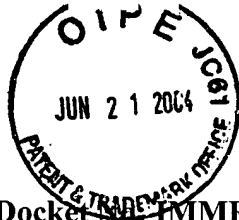
Dated: June 21, 2004

Cooley Godward LLP  
ATTN: Patent Group  
One Freedom Square  
Reston Town Center  
11951 Freedom Drive  
Reston, VA 20190-5656  
Tel: (703) 456-8000  
Fax: (703) 456-8100

Respectfully submitted,  
**COOLEY GODWARD LLP**

By:

  
\_\_\_\_\_  
Erik B. Milch  
Reg. No. 42,887



Attorney Docket No. FMMR-064/00US

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Danny GRANT

Examiner: Unassigned

Serial No. 10/758,599

Art Unit: 2837

Confirmation No.: 5397

Filed: January 16, 2004

For: **METHOD AND APPARATUS FOR PROVIDING HAPTIC FEEDBACK  
HAVING A POSITION-BASED COMPONENT AND A PREDETERMINED  
TIME-BASED COMPONENT**

---

U.S. Patent and Trademark Office  
220 20<sup>th</sup> Street South  
Customer Window, Mail Stop Missing Parts  
Crystal Plaza Two, Lobby, Room 1B03  
Arlington, VA 22202

**INFORMATION DISCLOSURE STATEMENT  
UNDER 37 C.F.R. §1.97(b)**

In accordance with the duty of disclosure set forth in 37 C.F.R. §1.56, Applicant(s) hereby submits the following information in conformance with 37 C.F.R. §1.97 and 1.98.

- ☒ Pursuant to 37 C.F.R. §1.98, a copy of each document cited in the attached Form PTO/SB/08 is provided on the enclosed CD.
- ☐ No copies of the publications listed on the attached Form PTO/SB/08A are being provided pursuant to 37 C.F.R. §1.98(d) because the publications were previously cited by or submitted to the Office in prior Application Serial No. \_\_\_\_\_ to which the above-identified application claims priority under 35 U.S.C. §120.
- ☐ No copies of any U.S. patents or U.S. patent application publications listed on the attached Form PTO/SB/08A are being provided pursuant to 37 C.F.R. §1.98 because this application was filed after June 30, 2003.
- ☐ Publication(s) \_\_\_ listed on the attached Form PTO/SB/08A were cited in a foreign search or examination report corresponding to \_\_\_ application serial no. and mailed on \_\_\_.
- ☐ Enclosed is a copy of a non-English publication(s) \_\_\_. Pursuant to §609 of the M.P.E.P., Applicant submits the attached foreign search or examination report, which cites such non-English language publication(s).

- ☐ Enclosed is a copy of a non-English publication(s) \_\_\_\_\_. English language publication \_\_\_\_ (copy enclosed) claims priority from this non-English publication.
- ☐ Enclosed is an explanation of non-English publication(s) \_\_\_\_ for which an English translation is not available.
- ☐ Enclosed is an English translation of non-English publication(s) \_\_\_\_\_ cited in the attached Form PTO/SB/08A.
- ☐ Enclosed is a copy of pending patent Application Serial No. \_\_\_\_\_.

This Information Disclosure Statement is filed within any one of the following time periods:

- ☐ within three months from the filing date of this national application other than a CPA under 37 C.F.R. § 1.53(d);
- ☐ within three months from the date of entry of the national stage as set forth in 37 C.F.R. §1.491 in this international application;
- ☒ before the mailing date of a first office action on the merits; or
- ☐ before the mailing of a first office action after the filing of a request for continued examination under 37 C.F.R. § 1.114.


It is respectfully requested that the Examiner consider the above-noted information and return an initialed copy of the attached Form PTO/SB/08A to the undersigned.

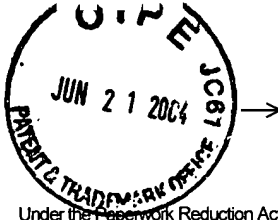
Dated: June 21, 2004

Cooley Godward LLP  
ATTN: Patent Group  
One Freedom Square  
Reston Town Center  
11951 Freedom Drive  
Reston, VA 20190-5656  
Tel: (703) 456-8000  
Fax: (703) 456-8100

Respectfully submitted,  
**COOLEY GODWARD LLP**

By:

  
\_\_\_\_\_  
Erik B. Milch  
Reg. No. 42,887



PTO/SB/08B (10-01)

Approved for use through 10/31/2002. OMB 0651-0031  
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449B/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 1 of 10**Complete if Known**

Application Number	10/758,599
Filing Date	January 16, 2004
First Named Inventor	Danny Grant
Art Unit	2837
Examiner Name	
Attorney Docket Number	IMMR064/00 US

**U.S. PATENT DOCUMENTS**

Examiner	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code <sup>2</sup> (if known)			
		2,972,140	2/14/1961	Hirsch	
		3,157,853	11/17/1964	Hirsch	
		3,220,121	11/30/1965	Cutler	
		3,497,668	2/24/1970	Hirsch	
		3,517,446	6/30/1970	Corlyon et al.	
		3,623,064	11/23/1970	Kagan	
		3,902,687	6/25/1973	Hightower	
		3,903,614	9/9/1975	Diamond et al	
		3,911,416	10/7/1995	Feder	
		3,919,691	11/1975	Noll	
		4,127,752	11/28/1978	Lowthorp	
		4,160,508	7/10/1979	Salsbury	
		4,236,325	10/2/1980	Hall et al.	
		4,262,549	4/21/1981	Schwellenbach	
		4,333,070	6/1/1982	Barnes	
		4,464,117	8/7/1984	Foerst	
		4,484,191	11/20/1984	Vavra	
		4,513,235	4/23/1985	Acklam et al.	
		4,581,491	4/8/1986	Boothroyd	
		4,599,070	7/8/1986	Hladky et al.	
		4,708,656	11/24/1987	De Vries et al.	
		4,713,007	12/15/1987	Alban	
		4,787,051	11/1988	Olson	
		4,794,392	12/27/1988	Selinko	
		4,795,296	01/1989	Jau	
		4,868,549	09/1989	Affinito et al.	
		4,885,565	12/5/1989	Embach	
		4,891,764	1/2/1990	McIntosh	
		4,896,554	01/1990	Culver	
		4,930,770	6/5/1990	Baker	
		4,934,694	6/19/1990	McIntosh	
		4,949,119	08/1990	Moncrief et al.	
		5,019,761	5/28/1991	Kraft	
		5,022,384	6/11/1991	Freels	

Examiner  
SignatureDate  
Considered

<sup>1</sup> EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Substitute for form 1449B/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet **2** of **10****Complete if Known**

Application Number	10/758,599
Filing Date	January 16, 2004
First Named Inventor	Danny Grant
Art Unit	2837
Examiner Name	
Attorney Docket Number	IMMR064/00 US

**U.S. PATENT DOCUMENTS**

Examiner	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code <sup>2</sup> (if known)			
		5,022,407	6/11/1991	Horch et al.	
		5,035,242	7/30/1991	Franklin	
		5,038,089	8/6/1991	Szakaly	
		5,044,956	09/1991	Behensky et al.	
		5,078,152	1/7/1992	Bond	
		5,107,262	04/1992	Cadoz et al.	
		5,146,566	09/1992	Hollis, Jr. et al.	
		5,165,897	11/24/1992	Johnson	
		5,175,459	12/29/1992	Danial et al.	
		5,184,319	02/1993	Kramer	
		5,185,561	02/1993	Good et al.	
		5,186,629	02/1993	Rohen	
		5,186,695	2/16/1993	Mangseth et al.	
		5,203,563	04/1993	Loper, III	
		5,212,473	5/18/1993	Louis	
		5,220,260	06/1993	Schuler	
		5,240,417	8/31/1993	Smithson et al.	
		5,271,290	12/21/1993	Fischer	
		5,275,174	1/4/1994	Cook	
		5,283,970	2/8/1994	Aigner	
		5,296,871	03/1994	Paley	
		5,299,810	4/5/1994	Pierce	
		5,309,140	5/3/1994	Everett	
		5,334,027	8/2/1994	Wherlock	
		5,355,148	10/1994	Anderson	
		5,388,992	02/1995	Franklin et al.	
		5,399,091	03/1995	Misumoto	
		5,405,152	04/1995	Katanics et al.	
		5,414,337	05/1995	Schuler	
		5,436,622	7/25/1995	Gutman et al.	
		5,437,607	8/1/1995	Taylor	
		5,451,924	09/1995	Massimino et al.	
		5,466,213	11/14/1995	Hogan	

Examiner  
SignatureDate  
Considered

<sup>1</sup> EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449B/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet **3** of **10****Complete if Known**

Application Number	10/758,599
Filing Date	January 16, 2004
First Named Inventor	Danny Grant
Art Unit	2837
Examiner Name	
Attorney Docket Number	IMMR064/00 US

**U.S. PATENT DOCUMENTS**

Examiner	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code <sup>2</sup> (if known)			
		5,506,605	04/1996	Paley	
		5,542,672	08/1996	Meredith	
		5,547,382	8/20/1996	Yamasaki	
		5,550,562	08/1996	Aoki et al.	
		5,565,840	10/1996	Thorne et al.	
		5,575,761	11/19/1996	Hajianpour	
		5,583,478	12/1996	Renzi	
		5,589,828	12/1996	Armstrong	
		5,589,854	12/1996	Tsai	
		5,625,576	04/1997	Massie et al.	
		5,629,594	05/1997	Jacobus et al.	
		5,643,087	07/1997	Marcus et al.	
		5,666,138	09/1997	Culver	
		5,684,722	11/1997	Thorne et al.	
		5,690,582	11/25/1997	Ulrich et al.	
		5,696,537	12/1997	Solhjell	
		5,709,219	01/1998	Chen et al.	
		5,714,978	02/1998	Yamanaka et al.	
		5,734,373	03/1998	Rosenberg et al.	
		5,736,978	04/1998	Hasser et al.	
		5,742,278	04/1998	Chen et al.	
		5,754,023	05/1998	Roston et al.	
		5,766,016	6/16/1998	Sinclair	
		5,781,172	07/1998	Engel et al.	
		5,784,052	07/1998	Keyson	
		5,785,630	7/28/1998	Bobick et al.	
		5,790,108	08/1998	Salcudean et al.	
		5,802,353	09/1998	Avila et al.	
		5,825,308	10/1998	Rosenberg	
		5,844,392	12/1998	Peurach et al.	
		5,857,986	01/1999	Moriyasu	
		5,880,714	03/1999	Rosenberg et al.	
		5,889,672	03/1999	Schuler et al.	

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449B/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet **4** of **10****Complete if Known**

Application Number	10/758,599
Filing Date	January 16, 2004
First Named Inventor	Danny Grant
Art Unit	2837
Examiner Name	
Attorney Docket Number	IMMR064/00 US

**U.S. PATENT DOCUMENTS**

Examiner	Cite No. <sup>1</sup>	Document Number Number Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,897,437	04/1999	Nishiumi et al.	
		5,912,661	06/1999	Siddiqui	
		5,914,705	06/1999	Johnson et al.	
		5,944,151	08/1999	Jakobs et al.	
		5,956,484	09/1999	Rosenberg et al.	
		5,959,613	09/1999	Rosenberg et al.	
		5,973,689	10/1999	Gallery	
		5,986,643	11/1999	Harvill et al.	
		5,990,869	11/1999	Kubica et al.	
		6,001,014	12/1999	Ogata et al.	
		6,004,134	12/1999	Marcus et al.	
		6,005,551	12/1999	Osborne et al.	
		6,020,876	02/2000	Rosenberg et al.	
		6,028,593	02/2000	Rosenberg et al.	
		6,061,004	05/2000	Rosenberg	
		6,078,308	06/2000	Rosenberg et al.	
		6,088,017	07/2000	Tremblay et al.	
		6,088,019	07/2000	Rosenberg	
		6,100,874	08/2000	Schena et al.	
		6,111,577	8/29/2000	Zilles et al.	
		6,128,006	10/2000	Rosenberg et al.	
		6,154,201	11/2000	Levin et al.	
		6,160,489	12/12/2000	Perry et al.	
		6,184,868	02/2001	Shahoian et al.	
		6,211,861	04/2001	Rosenberg et al.	
		6,219,034	04/2001	Elbing et al.	
		6,243,078	06/2001	Rosenberg	
		6,271,833	08/2001	Rosenberg	
		6,422,941	7/23/2002	Thorner et al.	
		6,448,977	09/2002	Braun et al.	
		6,469,692	10/2002	Rosenberg	
		6,563,487	05/2003	Martin et al.	

Examiner  
SignatureDate  
Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449B/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 5

of 10

**Complete if Known**

Application Number	10/758,599
Filing Date	January 16, 2004
First Named Inventor	Danny Grant
Art Unit	2837
Examiner Name	
Attorney Docket Number	IMMR064/00 US

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
		EP	0349086		1/3/1990	Stork Kwant B.V.	
		JP	H2-185278		7/19/1990	Taito Corporation	
		JP	H4-8381		1/13/1992	Epoch Co. and Key- Planning Co.	
		JP	H7-24147		1/27/1995	Sega Corporation	
		JP	H5-192449		8/3/1993	Taito Corporation	
		EP	0 265 011 A1		04/1988		
		EP	0 607 580 A1		07/1994		
		EP	0 626 634 A2		11/1994		
		WO	WO 92/00559		01/1992		
		WO	WO 95/20788		08/1995		
		WO	WO 97/31333		08/1997		
		WO	WO 00/03319		01/2000		

**OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS**

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	
		BAIGRIE, "Electric Control Loading - A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990.	
		IWATA, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp 287-292, 1993.	
		RUSSO, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," MIT Libraries Archives, pp. 1-131, May 1990, archived 08/14/1990.	
		BROOKS et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," JPL Publication 85-11; NASA-CR-175890; N85-28559, pp. 1-84, 03/1/1985.	
		JONES et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag); <i>Experimental Brain Research</i> , Vol. 79, No. 1, pp. 150-156, 1990.	
		BURDEA et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," 1993 IEEE International Conference on Robotics and Automation, pp. 25-44, 05/02/1993.	

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449B/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet **6** of **10****Complete if Known**

Application Number	10/758,599
Filing Date	January 16, 2004
First Named Inventor	Danny Grant
Art Unit	2837
Examiner Name	
Attorney Docket Number	IMMR064/00 US

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
			SNOW et al., "Model-X Force-Reflecting-Hand-Controller," NT Control No. NPO-17851; JPL Case No. 7348, pp. 1-4, with 45 pages of attachments, 06/15/1989.				
			OUH-YOUNG, "Force Display in Molecular Docking," Doctoral Dissertation, University of North Carolina at Chapel Hill, UMI Order No. 9034744, pp. 1-369, 1990.				
			TADROS, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators, <i>MIT Archive</i> , pp. 1-88, February 1990, archived 8/13/90.				
			CALDWELL et al., "Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, 1993.				
			ADELSTEIN, "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 1-12, 1992.				
			GOTOW et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WA11-11:00, pp. 332-337.				
			STANLEY et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 55-61, ASME 1992.				
			RUSSO, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 63-70, ASME 1992.				
			KONTARINIS et al., "Display of High-Frequency Tactile Information to Teleoperators," <i>Telemanipulator Technology and Space Telerobotics</i> , Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993.				
			PATRICK et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," <i>Cooperative Intelligent Robotics in Space</i> , Rui J. deFigueiredo et al., Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990.				
			ADELSTEIN, "A Virtual Environment System For The Study of Human Arm Tremor," <i>Ph.D. Dissertation</i> , Dept. of Mechanical Engineering, MIT, June 1989, archived 3/13/90.				
			BEJCZY, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," <i>Science</i> , Vol. 208, No. 4450, pp. 1327-1335, 1980.				
			BEJCZY et al., "Generalization of Bilateral Force-Reflecting Control of Manipulators," <i>Proceedings Of Fourth CISM-IFTOMM</i> , Sep. 8-12, 1981.				
			MCAFFEE, "Teleoperator Subsystem/Telerobot Demonsdtrator: Force Reflecting Hand Controller Equipment Manual," <i>JPL D-5172</i> , January 1988.				
			MINSKY, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," <i>Ph.D. Dissertation</i> , MIT, June 1995, archived 7/6/95.				

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)		<b>Complete if Known</b>	
		Application Number	10/758,599
		Filing Date	January 16, 2004
		First Named Inventor	Danny Grant
		Art Unit	2837
		Examiner Name	
Sheet 7 of 10	Attorney Docket Number	IMMR064/00 US	

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
			JACOBSEN et al., "High Performance, Dextrous Telerobotic Manipulator With Force Reflection," <i>Intervention/ROV '91 Conference &amp; Exposition</i> , Hollywood, Florida, May 21-23, 1991.				
			SHIMOGA, "Finger Force and Touch Feedback Issues in Dexterous Telemanipulation," <i>Proceedings of Fourth Annual Conference on Intelligent Robotic Systems for Space Exploration</i> , Rensselaer Polytechnic Institute, Sep. 30 - Oct. 1, 1992.				
			IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device With Force and Tactile Feedback," Vol. 32, No. 9B, February 1990.				
			TERRY et al., "Tactile Feedback In A Computer Mouse," <i>Proceedings of Fourteenth Annual Northeast Bioengineering Conference</i> , University of New Hampshire, March 10-11, 1988.				
			HOWE, "A Force-Reflecting Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation," <i>Proceedings of the 1992 IEEE International Conference on Robotics and Automation</i> , Nice, France, May 1992.				
			EBERHARDT et al., "OMAR - A Haptic display for speech perception by deaf and deaf-blind individuals," <i>IEEE Virtual Reality Annual International Symposium</i> , Seattle, WA, Sep. 18-22, 1993.				
			RABINOWITZ et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contactor area," <i>Journal of The Acoustical Society of America</i> , Vol. 82, No. 4, October 1987.				
			BEJCZY et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," <i>International Computer Technology Conference, The American Society of Mechanical Engineers</i> , San Francisco, CA, August 12-15, 1980.				
			BEJCZY et al., "A Laboratory Breadboard System For Dual-Arm Teleoperation," <i>SOAR '89 Workshop</i> , JSC, Houston, TX, July 25-27, 1989.				
			OUH-YOUNG, "A Low-Cost Force Feedback Joystick and Its Use in PC Video Games," <i>IEEE Transactions on Consumer Electronics</i> , Vol. 41, No. 3, August 1995.				
			MARCUS, "Touch Feedback in Surgery," <i>Proceedings of Virtual Reality and Medicine The Cutting Edge</i> , Sept. 8-11, 1994.				
			BEJCZY, et al., "Universal Computer Control System (UCCS) For Space Telerobots," CH2413-3/87/0000/0318501.00 1987 IEEE, 1987.				
			PATRICK, "Design, Construction, and Testing of a Fingertip Tactile Display for Interaction with Virtual and Remote Environments," <i>Master of Science Thesis</i> , MIT, Aug. 1990, archived Nov. 8, 1990.				
			CALDER, "Design of A Force-Feedback Touch-Introducing Actuator For Teleoperator Robot Control," <i>Bachelor of Science Thesis</i> , MIT, May 1983, archived June 23, 1983.				
			WIKER, "Teletouch Display Development: Phase 1 Report," <i>Technical Report 1230</i> , Naval Ocean Systems Center, San Diego, July 1988.				

Examiner Signature	Date Considered
-----------------------	--------------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449B/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet **8** of **10****Complete if Known**

<b>Application Number</b>	<b>10/758,599</b>
<b>Filing Date</b>	<b>January 16, 2004</b>
<b>First Named Inventor</b>	<b>Danny Grant</b>
<b>Art Unit</b>	<b>2837</b>
<b>Examiner Name</b>	
<b>Attorney Docket Number</b>	<b>IMMR064/00 US</b>

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
			BLISS, "Optical-to-Tactile Image Conversion for the Blind," <i>IEEE Transactions on Man-Machine Systems</i> , Vol. MMS-11, No. 1, March 1970.				
			JOHNSON, "Shape-Memory Alloy Tactile Feedback Actuator," <i>Armstrong Aerospace Medical Research Laboratory</i> , AAMRL-TR-90-039, August, 1990.				
			KONTARINIS et al., "Tactile Display of Vibratory Information in Teleoperation and Virtual Environments," <i>PRESENCE</i> , 4(4):387-402, Harvard Univ., 1995.				
			AUKSTAKALNIS et al., "Silicon Mirage: The Art and Science of Virtual Reality," ISBN 0-938151-82-7, pp. 129-180, 1992.				
			EBERHARDT et al., "Inducing Dynamic Haptic Perception by The Hand: System Description and Some Results," DSC-Vol. 55-1, <i>Dynamic Systems and Control: Volume 1</i> , ASME 1994.				
			GOBEL et al., "Tactile Feedback Applied to Computer Mice," <i>International Journal of Human-Computer Interaction</i> , Vol. 7, No. 1, pp. 1-24, 1995.				
			PIMENTEL et al., "Virtual Reality: through the new looking glass," 2 <sup>nd</sup> Edition; McGraw-Hill, ISBN 0-07-050167-X, pp. 41-202, 1994.				
			"Cyberman Technical Specification," <i>Logitech Cyberman SWIFT Supplement to Logitech Mouse Technical Reference and Programming Guide</i> , 4/5/1994.				
			OUHYOUNG et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," <i>Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95</i> , Seoul, Korea, 21-24 August 1995.				
			KACZMAREK et al., "Tactile Displays," <i>Virtual Environment Technologies</i> , Chap. 9, pp. 349-414.				
			LAKE, "Cyberman from Logitech," at <a href="http://www.ibiblio.org/GameBytes/issue21/greviews/cyberman.html">http://www.ibiblio.org/GameBytes/issue21/greviews/cyberman.html</a> , 1994.				
			"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).				
			"Technical Manual Overhaul Instructions With Parts Breakdown, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 15 July 1980 (23 pages).				
			SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994				
			YAMAKITA et al., "Tele-Virtual Reality of Dynamic Mechanical Model," <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems</i> , Raleigh, NC, July 7-10, 1992				

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)			<b>Complete if Known</b>		
			Application Number	10/758,599	
			Filing Date	January 16, 2004	
			First Named Inventor	Danny Grant	
			Art Unit	2837	
			Examiner Name		
Sheet	9	of	10	Attorney Docket Number	IMMR064/00 US

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
		NOLL, "Man-Machine Tactile," <i>SID Journal</i> , July/August 1972 Issue.					
		ROSENBERG, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance In Telepresence Tasks," <i>Ph.D. Dissertation</i> , Stanford University, June 1994.					
		Buttolo et al., "Pen-Based Force Display for Precision Manipulation in Virtual Environments," 0-8186-7084 IEEE Mar. 1995, pp. 217-224.					
		Schmult et al., "Application Areas for A Force-Feedback Joystick," DSC-vol. 49, Advances in Robotics, Mechatronics, and Haptic Interfaces, ASME 1993, pp. 47-54.					
		Ellis et al., "Design and Evaluation of a High-Performance Prototype Planar Haptic Interface," DSC-vol. 49, Advances in Robotics, Mechatronics, and Haptic Interfaces, ASME Dec. 1993, pp. 55-65.					
		Hannaford et al., "Force-Feedback Cursor Control," NASA Tech Brief, vol. 13, No. 11, Item #21, Jet Propulsion Lab., Nov. 1989.					
		Kelley et al., "On the Development of a Force-Feedback Mouse and Its Integration Into a Graphical User Interface," Symp. on Haptic Interfaces for Virtual Envir. and Teleoperator Systems, 1994 Int'l Mech. Eng. Congress and Exhibition, Nov. 1994.					
		Iwata, H., "Artificial Reality with Force-Feedback: Development of Desktop Virtual Space with Compact Master Manipulator," Computer Graphics, vol. 24, No. 4, Aug. 1990, pp. 165-170.					
		Ramstein et al., "The Pantograph: A Large Workspace Haptic Device for a Multimodal Human-Computer Interaction," Computer-Human Interaction, CHI'94.					
		Rosenberg et al., "Commercially Viable Force Feedback Controller for Individuals with Neuromotor Disabilities," USAF Armstrong Lab., May 1996.					
		Su et al., "The Virtual Panel Architecture: A 3D Gesture Framework," Computer Science Depts., Univ. of Maryland, Texas A&M Univ., Jan. 1993.					
		Adachi et al., "Sensory Evaluation of Virtual Haptic Push-Buttons," Technical Research Center, Suzuki Motor Corp., 1994.					
		Rosenberg, L., "A Force Feedback Programming Primer--For PC Gaming Peripherals Supporting I-Force 2.0 and Direct-X 5.0," Immersion Corporation, 1997.					
		Hasser, C., "Tactile Feedback For a Force-Reflecting Haptic Display," School of Engineering, Univ. of Dayton, Dec. 1995.					
		Hasser, C. et al., "Tactile Feedback With Adaptive Controller for a Force-Reflecting Haptic Display--Part 1: Design," IEEE 0-7803-3131, Jan. 1996.					

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>		<b>Complete if Known</b>			
		Application Number	10/758,599		
		Filing Date	January 16, 2004		
		First Named Inventor	Danny Grant		
		Art Unit	2837		
		Examiner Name			
Sheet	10	of	10	Attorney Docket Number	IMMR064/00 US

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
			Dennerlein, Jack T. et al., "Vibrotactile Feedback for Industrial Telemanipulators," 6.sup.th Ann. Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems, ASME IMECE, Nov. 1997.				
			Akamatsu, M. et al., "Multimodal Mouse: A Mouse-Type Device With Tactile and Force Display," Presence, vol. 3, No. 4, Winter 1994, pp. 73-80.				
			Kelley, A.J. et al., "MagicMouse: Tactile and Kinesthetic Feedback in the Human-Computer Interface Using an Electromagnetically Actuated Input/Output Device," Dept. of Elec. Eng., Univ. of British Columbia, Oct. 1993, pp. 1-27.				
			Ramstein, C., "Combining Haptic and Braille Technologies: Design Issues and Pilot Study," ACM 0-89791-776 Jun. 1996, pp. 37-44.				
			Payette, J. et al., "Evaluation of a Force Feedback (Haptic) Computer Pointing Device in Zero Gravity," DSC-vol. 58, Proc. of ASME Dynamics Systems and Control Division, ASME 1996, pp. 547-553.				
			Wiker, S. et al., "Development of Tactile Mice for Blind Access to Computers: Importance of Stimulation Locus, Object Size, and Vibrotactile Display Resolution," Proc. of Human Factors Society 35.sup.th Annual Meeting 1991, pp. 708-712.				

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.